Contents

Contents v

Editorial ix

Letters

Reactive deposition of In_2O_3 films on nucleated-crystallite substrates 1
S. Muranaka (Kyoto, Japan)

Chloroform-soluble poly(*o*-methoxyaniline) for ultra-thin film fabrication 5
R. M. Faria, L. H. C. Mattoso, M. Ferreira, O. N. Oliveira, Jr., D. Gonçalves and L. O. S. Bulhões (São Carlos, Brazil)

Synthesis and Characterization

Microanalyses of Ar^+-bombarded zirconia–yttria films on silicon substrates 9
N. K. Huang, Z. R. Feng and D. Z. Wang (Chengdu, China)

Characterization and optimization of cerium dioxide films deposited by r.f. magnetron sputtering 13
K. B. Sundaram, P. F. Wahid and P. J. Sisk (Orlando, FL, USA)

Correlation between hydrogen thermal evolution and morphology in glow discharge deposited a-Si:H films 17
C. Roch and J. C. Delgado (Barcelona, Spain)

Changes induced in the room temperature oxidation of $TiSi_x$ by Ar^+ bombardment 21
J. M. Sanz, M. Clement and J. M. Martínez-Duart (Madrid, Spain)

A detailed Raman study of porous silicon 27
H. Münder, C. Andrzejak, M. G. Berger, U. Klemradt, H. Lüth (Jülich, Germany), R. Herino and M. Ligeon (Saint Martin D'Hères, France)

A study of interface structure between diamond film and silicon substrate 34
Q. J. Gao, H. Yuan, X. Zhang, X. B. Fen, J. H. Li, Y. C. Yang, Z. D. Lin, X. F. Pen, B. X. Yang, G. S. Jiang and F. X. Lu (Beijing, China)

Interface-induced structural changes in amorphous chalcogenide superlattices 39
R. Ionov (Sofia, Bulgaria)

Glass and ceramic thin films deposited by an ultrasonically assisted sol–gel technique 44
M. Langlet, D. Walz, P. Marage and J. C. Joubert (Saint Martin d'Hères, France)

Reaction of tungsten hexafluoride with Si and TiN surfaces 55
M. J. Bozack (Auburn, AL, USA)

Characterization of surfactant introduction into germanium-rich $Si_{1-x}Ge_x$ molecular beam epitaxy layer growth on silicon by means of secondary-ion mass spectrometry and Auger electron spectroscopy 61
D. Krüeger, R. Kurps, H. J. Osten, G. Lippert and D. Roeser (Frankfurt, Germany)

Annealing of silicon nitride thin films prepared by plasma-enhanced chemical vapour deposition with helium dilution 65
J. C. Bruyère, B. Reynes, C. Savall (Grenoble, France) and C. Roch (Barcelona, Spain)

Deposition of Zr–C thin films and plasma-polymerized hydrocarbon films in the reactive magnetron sputtering process 72
M. Yoshitake, T. Nosaka, A. Okamoto, S. Ogawa and K. Nishikawa (Osaka, Japan)

Surface evaluation of ultrathin platinum films 79
S. Itabashi and H. Yoshihara (Kanagawa, Japan)

Interface-controlled phase transformation and abnormal grain growth of α-Al_2O_3 in thin α-alumina films 89
T. C. Chou and T. G. Nieh (Palo Alto, CA, USA)

Surfaces, Interfaces and Colloidal Behaviour

Valence Auger analysis of the annealing effect on atomic interaction at titanium–sapphire, titanium–silica and silver–silica interfaces 98
K. Takahashi (Tokyo, Japan), H. Ishii (Hyogo, Japan), Y. Takahashi (Ibaraki, Japan) and K. Nishiguchi (Suita, Japan)

Metallurgical, Protective and Hard Layers

Surface modification of pure titanium and Ti–6Al–4V by intensified plasma ion nitriding 104
T. M. Muraleedharan and E. I. Meletis (Baton Rouge, LA, USA)

Mechanics and Nanomechanics of Thin Layers

Effect of the temperature on the adhesion and the morphology of thin metal films evaporated on polyethylene terephthalate 114
J. F. Silvain, A. Veyrat and J. J. Ehrhardt (Villers-les-Nancy, France)

Change in the stress of aluminium thin films during high temperature storage 120
K. Hiraoka (Kanagawa, Japan)

Electronics, Optics and Opto-electronics

Laser-assisted evaporation of high-quality narrow-gap thin films 127
S. V. Plyatsko, Yu. S. Gromovoj, G. E. Kostyunin, F. F. Sizov and V. P. Klad'ko (Kiev, Ukraine)

A photochromic memory with a non-destructive read-out property 132
N. Tamaoki, S. Yoshimura and T. Yamaoka (Chiba, Japan)

High temperature stability of CrSi(W)–N films 140
W. Brückner, H. Grießmann. J.-I. Mönch, G. Schubert and A. Heinrich (Dresden, Germany)

Characterization of the spatial distribution of traps in Si_3N_4 by field-assisted discharge of metal–nitride–oxide–semiconductor devices 147
F. Martín and X. Aymerich (Barcelona, Spain)

Preparation and characterization of polycrystalline ZnS_xSe_{1-x} films prepared by a two-zone hot wall technique 154
P. Gupta, D. Bhattacharyya, S. Chaudhuri and A. K. Pal (Calcutta, India)

Effect of hydrogen on hot electron energy relaxation in SiO_2 and Si_3N_4 films 160
D. G. Esaev, V. M. Efimov and A. A. Shklyaev (Novosibirsk, Russian Federation)

Highly conductive and transparent films of tin and fluorine doped indium oxide produced by APCVD 166
B. Mayer (Scotts Valley, CA, USA)

Composition and electrical properties of Au–Al_2O_3 cermet thin films: a critical study 183
M. Gadenne, P. Gadenne (Paris, France), J. C. Martin and C. Sella (Meudon, France)

Growth kinetics of low pressure chemically vapour deposited selective tungsten films in WF_6–Si and WF_6–H_2 systems 191
A. S. Turtsevich, V. Y. Krasnitsky, V. I. Granko, V. P. Lesnikova, I. V. Smal, O. E. Sarychev, O. Y. Nalivaiko and S. V. Kravtsov (Minsk, Belarus)

Determination of electrical and optical parameters of $Ga_{1-x}In_xAs_ySb_{1-y}$ and $Ga_{1-x}Al_xAs_ySb_{1-y}$ thin layers grown on GaSb substrates by IR reflectivity 196
A. Mezerreg, C. Llinares, J. L. Lazzari and A. Montaner (Montpellier, France)

Electrical characteristics of $TaSi_2$–P^+-Si and $TiSi_2$–P^+-Si contacts formed by rapid thermal annealing 203
H.-C. Cho, S.-H. Paek, J.-S. Choi and Y.-S. Hwang (Seoul, South Korea)

The effects of surface and interface scattering on the electrical resistivity of Cu/Ag double-layered thin films 207
N. Artunç, S. Selvi (Izmir, Turkey) and Z. Z. Öztürk (Kocaeli, Turkey)

Influence of substrate temperature on the properties of argon-ion-assisted-deposited GeO_2 films 214
M. S. Al-Robaee, L. Shivalingappa, K. Narasimha Rao and S. Mohan (Bangalore, India)

Dielectric breakdown properties of Ta_2O_5/SiO_2 stacked thin films prepared by r.f. sputtering 220
K. Onisawa, Y. Abe, T. Nakayama, M. Fuyama and Y. A. Ono (Ibaraki, Japan)

The influence of deposition parameters on the low temperature resistivity of α-Mn thin films 224
F. Boakye (Kumasi, Ghana) and A. D. C. Grassie (Brighton, UK)

Stoichiometry effects in TiN diffusion barriers 228
H. Joswig and W. Pamler (Munich, Germany)

The electrical properties of vacuum-evaporated stoichiometric and non-stoichiometric CdTe thin films for opto-electronic applications 233
P. J. Sebastian (Morelos, Mexico)

Effect of deposition pressure on the microstructure and electrochromic properties of electron-beam-evaporated nickel oxide films 239
A. Agrawal, H. R. Habibi, R. K. Agrawal, J. P. Cronin, D. M. Roberts (Tucson, AZ, USA), R'S. Caron-Popowich and C. M. Lampert (Berkeley, CA, USA)

Chemical reactions at metal/compound semiconductor interfaces: Au and GaAs 254
P. H. Holloway and C. H. Mueller (Gainesville, FL, USA)

Optical properties and structure of thermally evaporated tin oxide films 262
D. W. Lane, J. A. Coath, K. D. Rogers, B. J. Hunnikin and H. S. Beldon (Swindon, UK)

Determination of migration mechanisms and their influence on the structure of films 267
V. R. Rubets and S. A. Kukushkin (Leningrad, Russian Federation)

Superconductivity

The role of the silver intermediate layer in $YBa_2Cu_3O_{7-x}$/Ag/In_2O_3/Si system 271
Y. Zeng, Z. Zhang, W. Luo, Y. Cai, X. Shen, N. Yang, M. Lu and Z. Hua (Shanghai, China)

Langmuir–Blodgett, Biological and Related Films

Control of the homogeneity of Langmuir–Blodgett films using the deposition-induced flow in the monolayer 276
O. Albrecht, H. Matsuda, K. Eguchi and T. Nakagiri (Kanagawa, Japan)

Role of central metal in phthalocyanine Langmuir–Blodgett films studied by hole burning 281
F. Adamec, M. Ambroz, P. Balog, E. Brynda, J. Dian, M. Vacha and J. Hala (Prague, Czechoslovakia)

Preparation and characterization of a novel Langmuir–Blodgett film optical waveguide with non-linear optical susceptibility inversion 285
I. Fujiwara, N. Asai and V. Howarth (Yokohama, Japan)

A monolayer study of the antibiotic ionophore monensin: pH influence and salt effects 292
A. Hochapfel, H. Hasmonay, M. Jaffrain and P. Peretti (Paris, France)

Adsorbability of dye molecules on Langmuir–Blodgett films of long-chain alkylammonium salts 298
M. Takahashi, K. Tajima (Yokohama, Japan) and K. Kobayashi (Tokyo, Japan)

Thin Film Devices, Sensors and Actuators

Effects of added TiO_2 on characteristics of SnO_2-based thick film gas sensors 304
W.-Y. Chung, D.-D. Lee and B.-K. Sohn (Taegu, South Korea)

Cobalt phthalocyanine as a basis for the optical sensing of nitrogen dioxide using surface plasmon resonance 311
P. S. Vukusic and J. R. Sambles (Exeter, UK)

Condensed Matter Film Behaviour

Field emission and field ion microscopy of zirconiated tungsten emitter 318
J. Pelleg (Beer Sheva, Israel) and R. Liu (Murray Hill, NJ, USA)

Author Index 324

Subject Index 325